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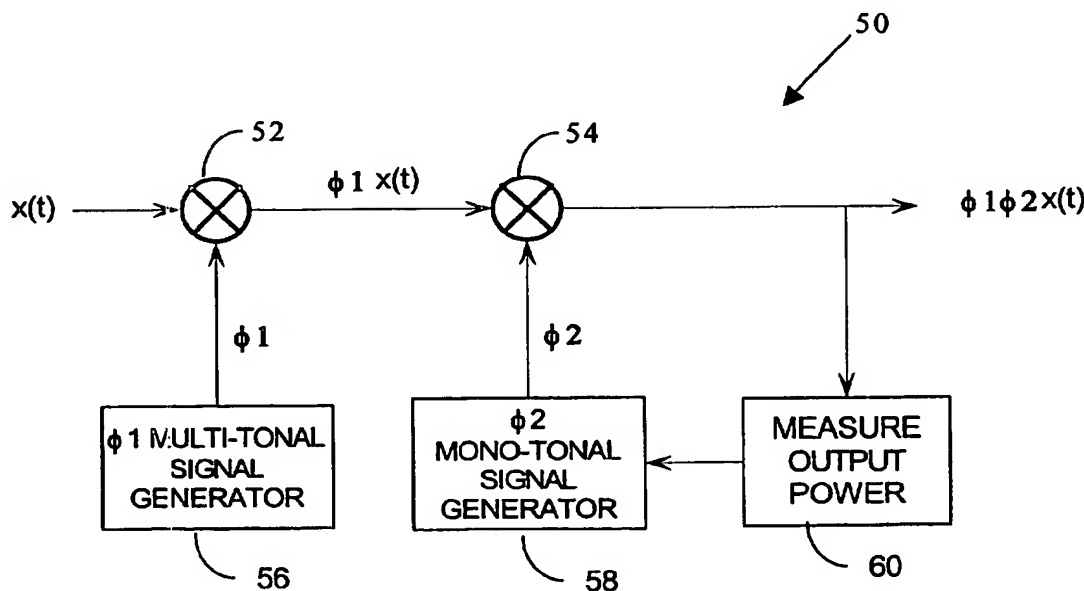
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20 November 2003For two-letter codes and other abbreviations, refer to the "Guid-
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ning of each regular issue of the PCT Gazette.

(54) Title: FREQUENCY DOWN CONVERTER USING A MULTITONE LOCAL OSCILLATOR



(57) Abstract: There is a need for an inexpensive, high-performance, fully-integrable, multistandard transceiver, which suppresses spurious noise signals. The invention provides a topology that satisfies this need, providing a first mixer for receiving an input signal $x(t)$, and mixing it with a multi-tonal mixing signal $\phi 1$ to generate an output signal $\phi 1 x(t)$, and providing a second mixer for receiving the $\phi 1 x(t)$ signal, and mixing it with a mono-tonal mixing signal $\phi 2$, to generate an output signal $\phi 1 \phi 2 x(t)$. The two mixing signals emulate an LO signal because $\phi 1 * \phi 2$ has significant power at the frequency of the LO signal being emulated. The topology also includes a power measurement circuit for measuring the power of the output signal $\phi 1 \phi 2 x(t)$. This power output signal is used to vary the characteristics of the mono-tonal mixing signal $\phi 2$ to reduce the power level of said output signal.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H03D7/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01 17120 A (SIRIFIC WIRELESS CORP.) 8 March 2001 (2001-03-08) page 7, line 5 -page 13, line 14; figure 5	1-26
A	US 5 862 173 A (P. DENT) 19 January 1999 (1999-01-19) column 4, line 45 -column 7, line 52; figure 1	1-26
A	US 5 838 717 A (S. ISHII) 17 November 1998 (1998-11-17) column 5, line 38 -column 7, line 40; figure 1	1-26
A	US 5 600 680 A (A. MISHIMA) 4 February 1997 (1997-02-04) column 4, line 37 -column 5, line 34; figure 1	1-26



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Information on patent family members

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